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Rubino, Jr.

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(54) **TATTOO BOTTLE WITH SECURE LID**

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(52) **U.S. Cl.**
CPC ***B65D 47/0838*** (2013.01)

(58) **Field of Classification Search**
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USPC 215/235, 373–5; 220/23.4, 23.2; 206/504, 1.7, 558, 63.5, 268, 1.8
See application file for complete search history.

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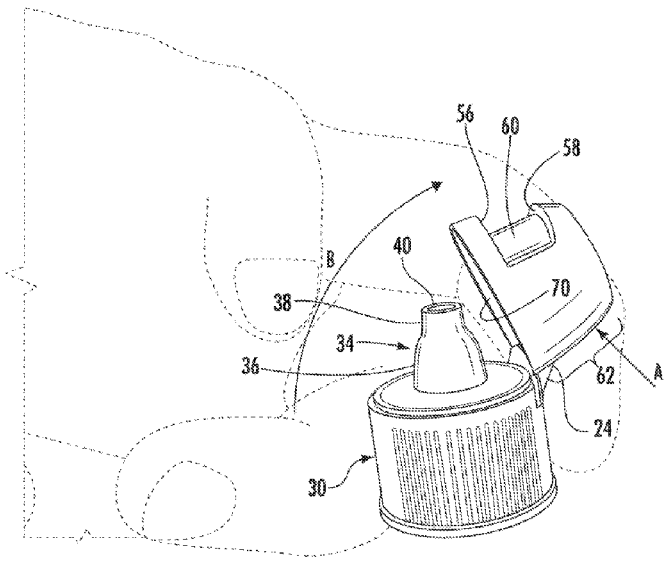
(57) **ABSTRACT**

A tattoo ink bottle is provided having an openable sanitary cap that is configured for one-handed operation and a tight closed seal.

16 Claims, 4 Drawing Sheets



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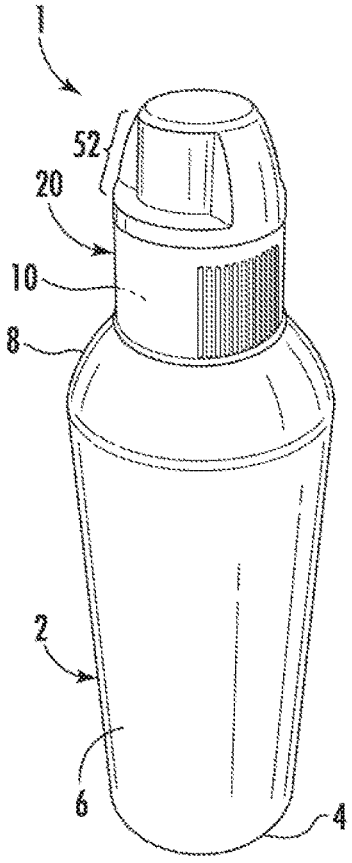

FIG. 1

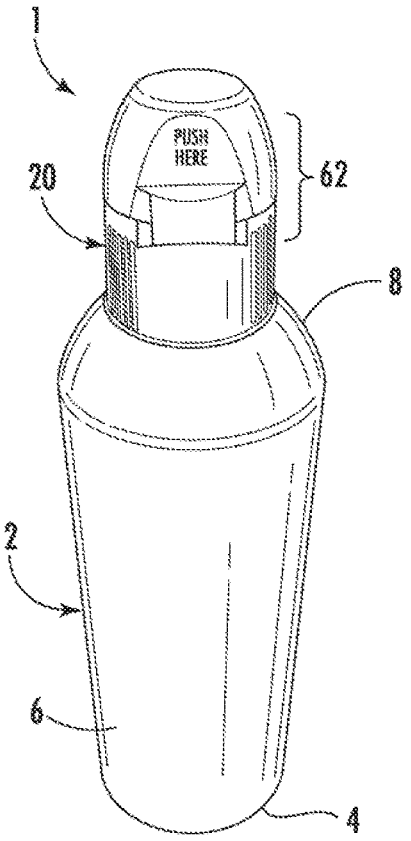

FIG. 2

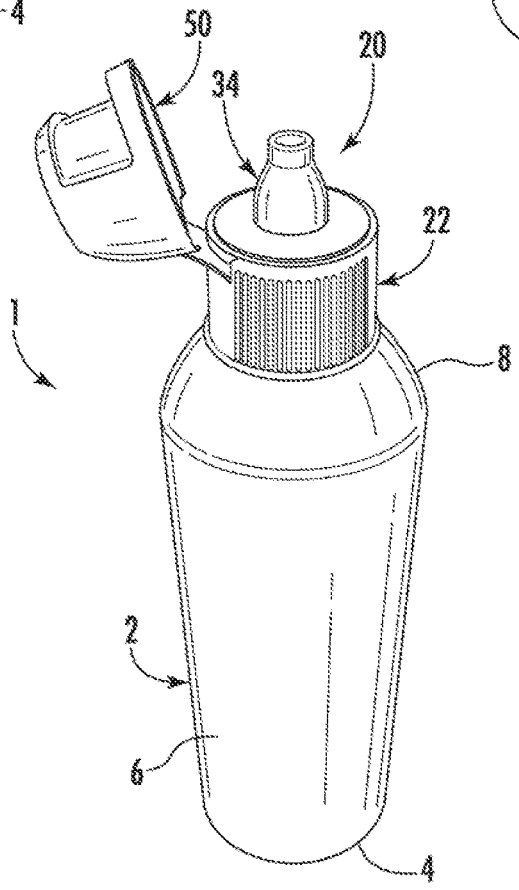

FIG. 3

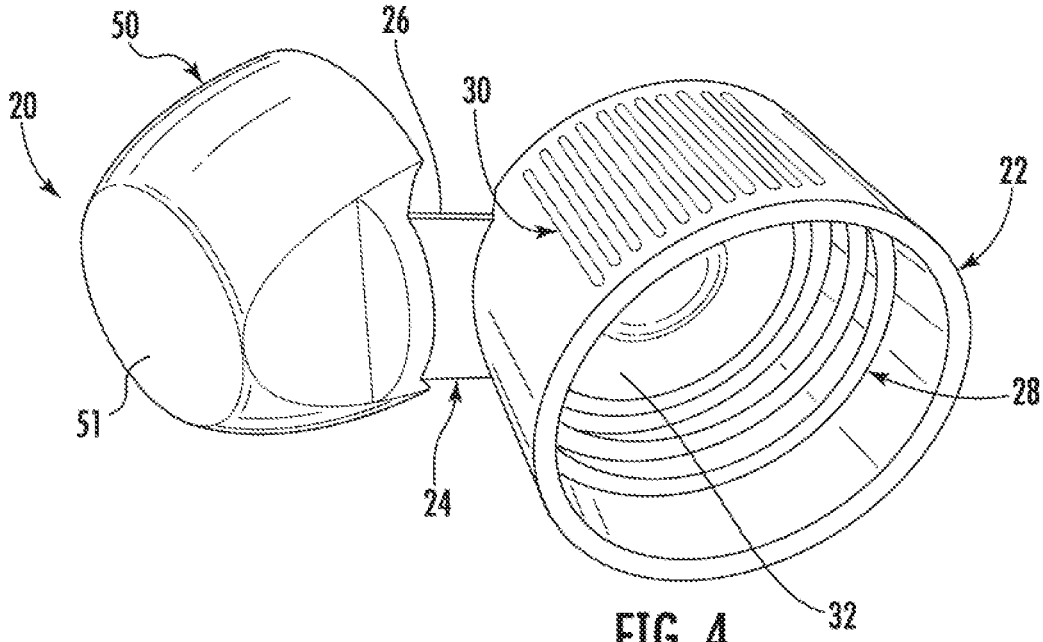

FIG. 4

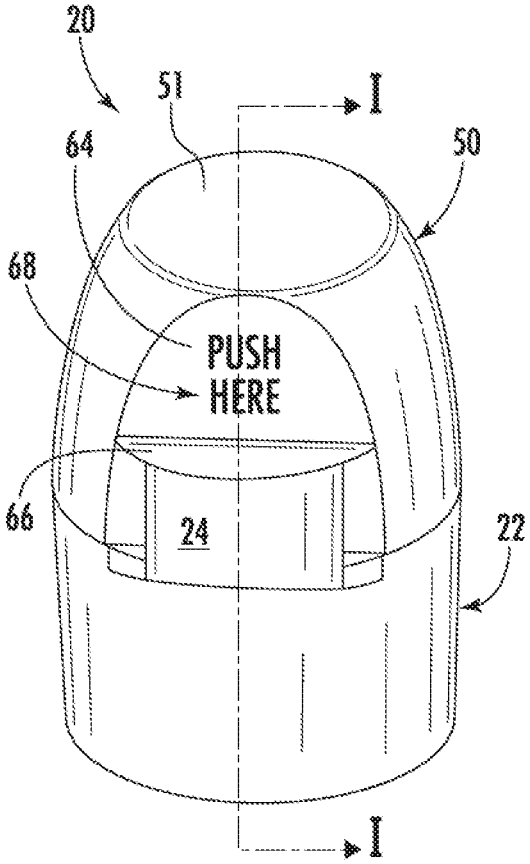

FIG. 5

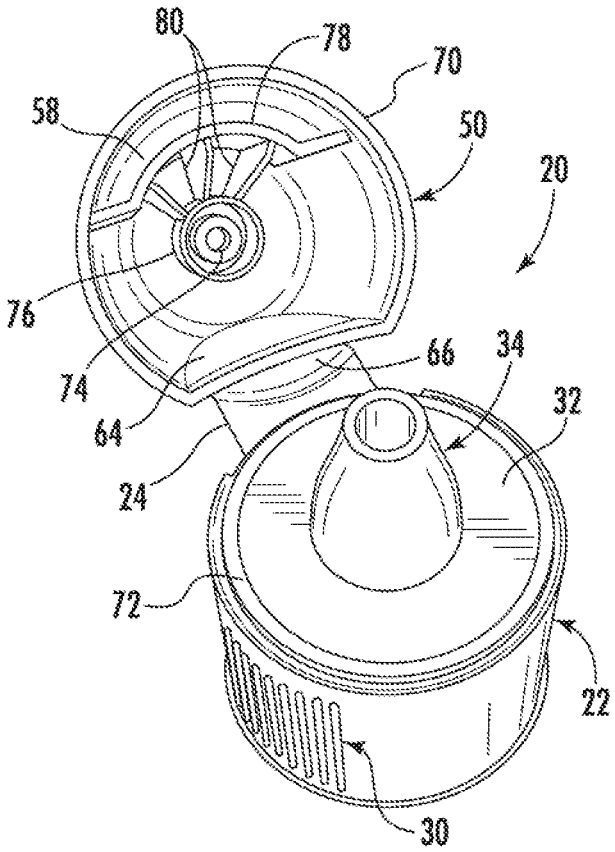

FIG. 6

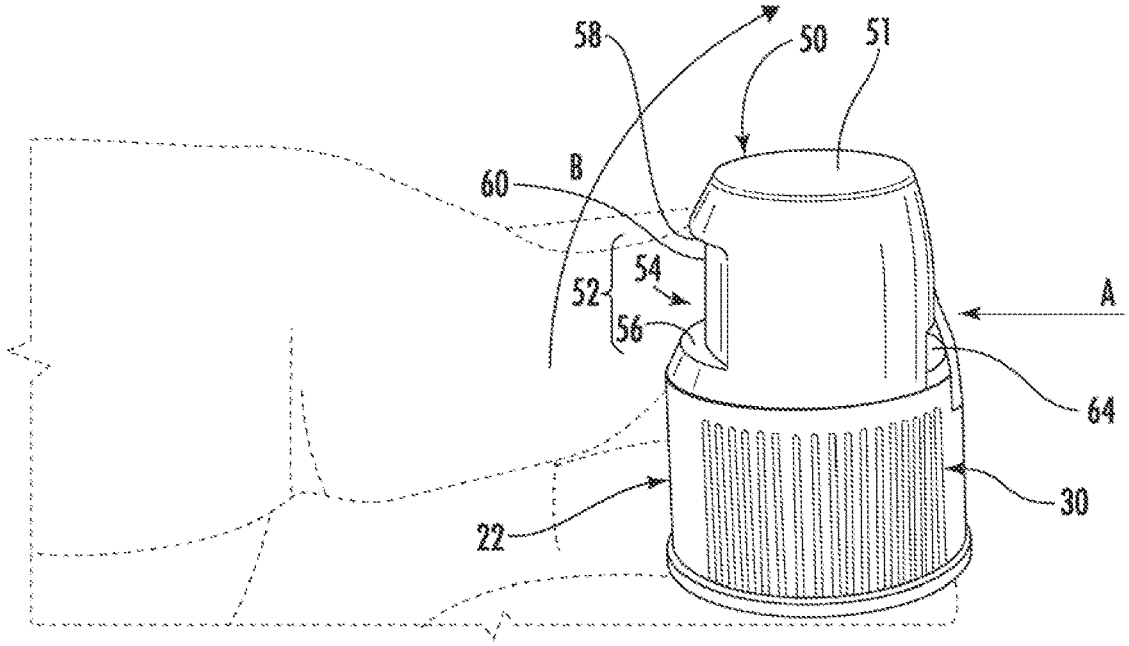

FIG. 7

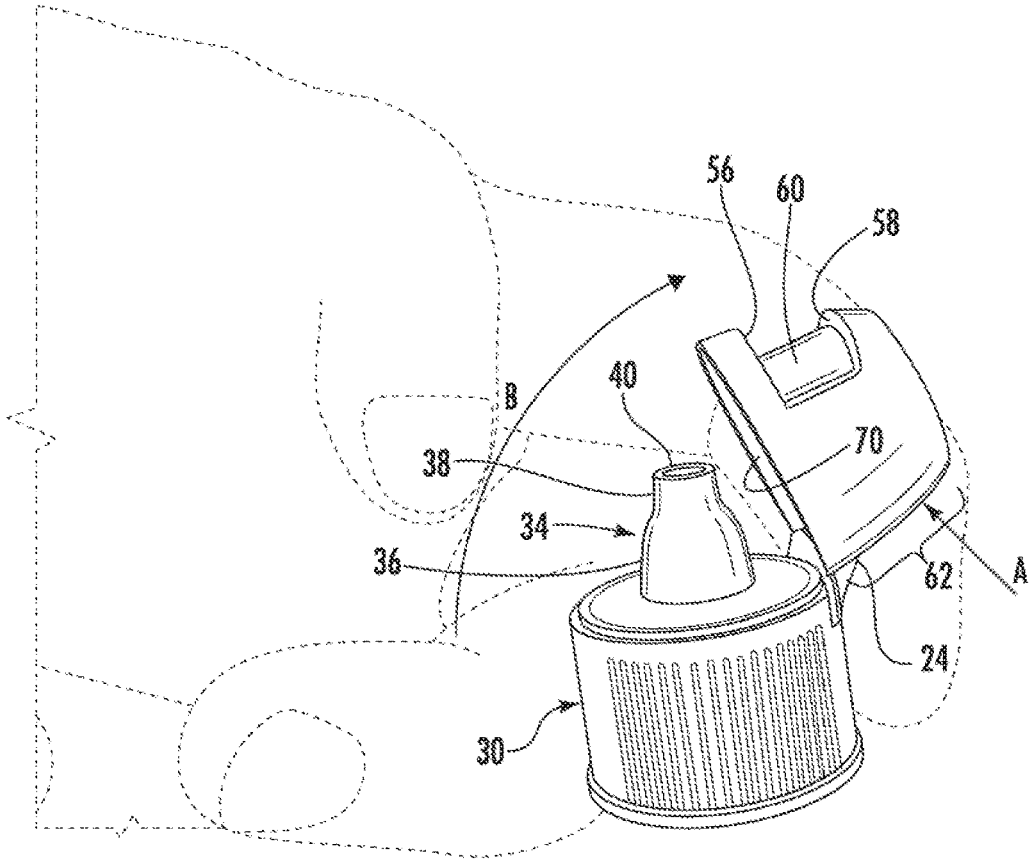

FIG. 8

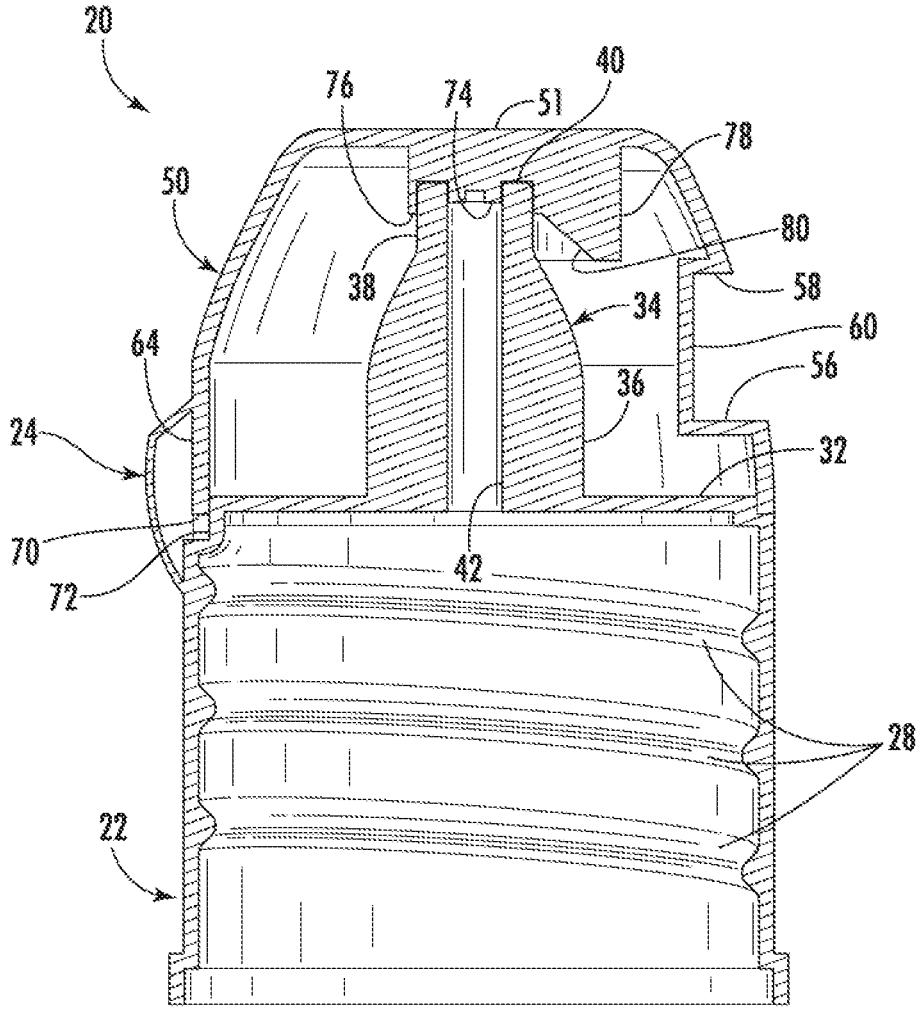

FIG. 9

TATTOO BOTTLE WITH SECURE LID

FIELD OF THE INVENTION

This invention relates to the field of tattoo ink bottles, and more particularly, to a tattoo ink bottle having a cap with an improved closure seal and one-handed operation.

BACKGROUND

Tattoos are a widely popular as a form of personal and artistic expression. Because the tattooing process involves injecting ink into the dermis layer of the skin using several inks and/or colors over a long period of time, there are attendant risks of infection. Some sources of infection are from a bottle of tattoo ink, whether incorporated by the manufacturer in the manufacturing or filling or later during transport of the bottle. Other sources of infection relate to use of the bottle by the tattoo artist during dispensing, re-use, or dilution of the ink. Accordingly, it is important for a tattoo ink bottle to provide a secure seal to prevent contamination.

At the same time, for the tattoo artist, tattooing is a time-consuming, delicate procedure that requires focus on both the artistic work and hygienic procedures. Several tattoo ink bottles may need to be opened and closed several times while the artist also manages needles, lighting, a stencil, and other nearby objects. It is advantageous if a tattoo ink bottle can be opened consistently with one hand.

Thus, there is the need for a tattoo bottle that improves both hygienic and economic performance by providing a strong closure seal while still being relatively easy to open one-handed.

SUMMARY

The present invention provides for a cap including a base, a hinge, and a lid. The base has a nozzle with a rim. The lid has first and second operative regions and inner and outer sealing parts for engaging the rim. The first operative region is defined by a first recessed face and a ledge, and the second operative region is defined by a second recessed face and a portion of the hinge. The lid is connected to the base by the hinge. The lid is openable by pressing the first operative region in a first direction and closeable by pressing the second operative region in a second direction.

In another embodiment, the present invention is directed to a bottle including a bottle body and a removable cap. The removable cap has a base, a lid, and a hinge. The lid includes diametrically-opposed first and second operative regions defined by respective first and second recessed faces. The hinge connects the base and the lid, and is located in the second operative region. The cap is openable by pressing the first operative region in an upward direction and closeable by pressing the hinge in a radially inward direction.

In yet another embodiment, the lid is openable by pressing each of the first and second operative regions in respective directions either simultaneously or sequentially.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a front perspective view of an exemplary tattoo ink bottle according to an embodiment of the present application, including a cap;

FIG. **2** is a rear perspective view of the bottle of FIG. **1**;

FIG. **3** is a side perspective view of the bottle of FIG. **1** with the cap in an open position;

FIG. **4** is a bottom view of the cap of the bottle of FIG. **1** in an open position;

FIG. **5** is a rear perspective view of the cap of FIG. **4** in the closed position;

FIG. **6** is a top perspective view of the cap of FIG. **4** in the open position;

FIG. **7** is a side view of the cap of FIG. **4** in the closed position;

FIG. **8** is a side view of the cap of FIG. **4** in the open position; and

FIG. **9** is a cross-sectional side view of the cap of FIG. **4**, taken along the line **9-9** of FIG. **5**.

DETAILED DESCRIPTION

Certain terminology is used in the following description for convenience only and is not considered limiting. Words such as "front", "back", "top" and "bottom" designate directions in the drawings to which reference is made. This terminology includes the words specifically noted above, derivatives thereof and similar words. Additionally, the terms "a" and "one" are defined as including one or more of the referenced item unless specifically noted. The phrase "at least one" followed by a list of two or more items (such as A, B, or C) means any individual one of A, B or C as well as any combination thereof. The term "substantially" means within ±5% of a given value or ±5 degrees from a given angle, as appropriate. The terms "about" and "generally" mean within ±10% of a given value, as appropriate.

At the outset, it is understood that this invention is not limited only to the particular embodiments, methodology, materials, and modifications described herein, and as such may vary. It is also understood that the terminology used herein is for the purpose of describing particular aspects only, and is not intended to limit the scope of the present invention, which is limited only by the appended claims.

Unless defined otherwise, all technical and scientific terms used herein have the same meaning as commonly understood to one of ordinary skill in the art to which this invention belongs. Although any methods, devices or materials similar or equivalent to those described herein can be used in the practice or testing of the invention, the following example methods, devices, and materials are now described.

FIGS. **1-3** show an exemplary embodiment of a tattoo ink bottle **1** including a body **2** and a cap **20**. The body **2** includes a bottom **4**, sidewall **6**, tapered neck **8**, and a top portion **10** for receiving the cap **20**. The top portion is preferably externally threaded to mate with internal threads **28** of the cap **20** as shown in FIG. **4** and as discussed further below. The illustrated body **2** is generally cylindrical, although various other shapes are contemplated.

FIGS. **4-9** show the cap **20** of the exemplary embodiment. The cap **20** includes a base **22** and a lid **50** connected by a hinge **24**. The hinge **24** is illustrated as a living hinge **26** integrally formed with the cap **20** and produced by the same manufacturing process at the same time. One of skill in the art will recognize that the hinge **24** may alternatively be a piano hinge, a living hinge, a pivot mechanism, a pinned door/gate hinge, or the like.

The base **22** of the cap **20** includes internal threads **28** for removable attachment to the top portion **10** of the body **2** of the tattoo ink bottle **1**. A tactile feature **30**, illustrated as a series of elongated indentations, is provided externally to aid in twisting the cap **20** on or off of the body **2**, and may also be used to aid in the process of opening the lid **50** as discussed further below. One of skill in the art will recognize

that various economic features may serve as the tactile feature **30**, such as elongated raised portions, a roughened surface texture, or the like.

The base **22** of the cap **20** also includes a shoulder **32** connecting to a nozzle **34** for dispensing ink. The shoulder **32** and the nozzle **34** can be integrally formed as one piece that is separable from the base **22**, or they can be integrally formed with the base **22**. As best shown in FIGS. **8-9**, the nozzle **34** includes a lower portion **36** and an upper portion **38** terminating at a rim **40**, with a passage **42** extending through the nozzle **34**. The lower portion **36** may be tapered and the upper portion **38** may be cylindrical.

The lid **50** of the cap **20**, shown in detail in FIGS. **4-9**, includes a variety of features for improved ergonomics to open and close the lid, particularly to open or close the lid with only one hand. A top **51** of the lid **50** may be substantially flat. A first operative region **52** is provided on the front of the lid **50** opposite the hinge **24**. The first operative region **52** includes a recess **54** defined by a lower ledge **56**, upper ledge **58**, and a first recessed face **60**. As shown in FIG. **9**, the lower ledge **56** and the upper ledge **58** may be substantially parallel, with both the upper and lower ledge substantially perpendicular to the first recessed face **60**. A second operative region **62** is provide on the rear of the lid **50** and includes a second recessed face **64** and the hinge **24** connected by a central ledge **66**. The first operative region **52** and the second operative region **62** are circumferentially spaced apart by about 180 degrees; in other words, they are positioned on diametrically opposed sides of the cap **20**. The central ledge is flexible and in use can pivot relative to the hinge **24** and/or relative to the second recessed face **64**. As shown in FIG. **5**, the second recessed face **64** may include indicia **68** such as "PUSH HERE" or other relevant instructions to aid a user in opening and/or closing the cap **20**.

The first recessed face **60** and the second recessed face **64** are recessed in the radial direction of the cap **20**. The first recessed face **60** and the second recessed face **64** may have various shapes, such as substantially planar, convexly curved concentrically with a bottom rim **70** of the lid **50**, or concavely curved as shown with the second recessed face **64** in FIG. **6**.

The lid **50** also includes several features to ensure tight engagement with the base **22**. As shown in FIGS. **6**, **8**, and **9**, the lower rim **70** of the lid **50** is designed to tightly engage an upper rim **72** of the base **22**. An inner sealing part **74** and an outer sealing part **76** are concentrically circular and extend down from the top **51** of the lid to engage the rim **40** of the nozzle **34**. As discussed below, the inner and outer sealing parts **74**, **76** may have a tight fit with the rim **40**. A beam **78** extends up from the upper ledge **58** to the top **51**. As shown in FIG. **6**, the beam **78** may include outer chordal sections and an inner circumferential section. One or more radial ribs **80** may extend between the outer sealing part **76** and the beam **78**, preferably at the inner circumferential section of the beam. In this manner, the beam **78** and the ribs **80** provide structural reinforcement to the upper ledge **58**, the outer sealing part **76**, and the top **51**.

One embodiment of a method for opening and closing the cap **20** is shown in FIGS. **7** and **8**. To open the lid **50**, a user may press the first operative region **52**, particularly the upper ledge **58** and the first recessed face **60**, upward as indicated with the arrow B. One skilled in the art would appreciate that the recess **54** of the first operative region **52** ergonomically allows a user to gain purchase and traction on the lid **50** with a single finger for then pressing in the direction B. In an alternative embodiment, a user may press a finger in the second operative region **62** radially inward as indicated with the arrow A. This pressing in the direction A may be directly against the hinge **24**, promoting deformation of the lid **50** to allow the lid **50** to be easily separated from the base **22** prior to or simultaneously with pressing the first operative region **52**.

The pressing in the directions A and B may generally be considered two operative motions or actions. The pressing in the directions A and B may be done separately, or when opening the lid **50** may be done simultaneously or sequentially in any order.

To close the cap **20**, a user presses the lid **50** inward at the second operative region **62** in the direction A and/or down onto the top **51**. An audible "click" or other audible feedback may be provided to confirm to a user that the cap **20** is fully closed. This feedback is caused by the close fit and tolerances of the interfitted parts, including at least one of inner and outer sealing parts **74**, **76** snapping onto the nozzle **34**. Because the closing motion may require a relatively high degree of force, the beam **78** and the ribs **80** advantageously support the structure of the lid **50** and prevent any deformation of the material, particularly preventing deformation of the top **51** or the inner and outer sealing parts **74**, **76**.

One of skill in the art would recognize that various changes to the structure or operation of the tattoo ink bottle **1** are within the scope of the present application. For example, in a reversed position of FIGS. **7** and **8**, pressing in direction A could be performed by a user's thumb while pressing in direction B is performed by the user's finger. In another embodiment, both pressing motions may cooperatively aid in causing the lid **50** to release from the base **22** of the cap **20**. In this case, pressing in direction B may deform the circumference of the lid **20** to separate it from the base **22** or pressing in direction B may urge the hinge **24** radially inward to cause an upward motion of the lid **50**. Performing both pressing motions together can increase the overall separating force applied. As such, there may be a relatively high holding strength of the lid **50** on the base **22** that may nonetheless be overcome by this two-stage one-handed operation.

The arrangement of the present invention, having tightly interfitted parts and two operative actions, provides advantages over the prior art. The cap **20** provides an improved seal for the bottle **2**, preventing contamination or accidental spilling of the ink contents. This improved seal does not sacrifice utility due to the economic two operative actions. At the same time, the structural arrangement and reinforcement of the cap **20** promote both of these advantages.

The first and second recessed faces **60**, **64** provide economic benefits in quickly and smoothly operating the cap **20**. The upper and lower ledges **56**, **58** also improve ergonomics and strength of the lid **50**.

Accordingly, various suitable materials may be employed in constructing the bottle **2** and the cap **20**, including various plastic or polymeric materials, metals or metal alloys, glass, and the like. Plastics are particularly applicable for providing strength with a slight degree of plasticity or elasticity to allow for close tolerances of the interfitting parts discussed above. The relative thickness of different parts may vary; for example, structural parts such as the beam **78** and ribs **80** may be relatively thicker than the inner and outer sealing parts **74** and **76** that may have some "give" to fit around the nozzle **34**. The entire cap **20** may be integrally formed as one molded plastic part formed in the same process at the same time, or may be made of multiple parts assembled together.

It is understood that this invention is not limited to the particular embodiments disclosed, but is intended to cover all modifications and combinations which are within the

spirit and scope of the invention as described herein and/or defined by the appended claims, the above description, and/or shown in the attached drawings. One skilled in the art will appreciate that various changes are possible.

What is claimed is:

1. A cap comprising:

a base including a nozzle having a nozzle rim and an upper base rim;

a hinge; and

a lid including:

an inner sealing part for engaging the nozzle rim,

a beam extending from a top of the lid,

a first operative region defined by a first recessed face defined between a first longitudinal wall and a second longitudinal wall, and a ledge,

a second operative region defined by a second recessed face and a portion of the hinge, and

an annular bottom rim configured to contact the upper base rim at an upper surface of the upper base rim, the annular bottom rim extending continuously at least in an area of the first operative region between the first longitudinal wall and the second longitudinal wall and directly below the first recessed face, the upper surface of the upper base rim configured to contact the annular bottom rim directly below the area,

wherein the lid is openable by pressing the first operative region in a first direction and closable by pressing the second operative region in a second direction.

2. The cap of claim **1**, wherein pressing in the second operative region forces the hinge in a radially inward direction of the cap.

3. The cap of claim **1**, wherein the first and second operative regions are diametrically opposed about the cap.

4. The cap of claim **1**, wherein the first operative region is further defined by a lower ledge, wherein the upper and lower ledges are substantially parallel.

5. The cap of claim **1**, wherein the inner sealing part extends from the lid to engage the nozzle.

6. The cap of claim **5**, wherein the inner sealing part is configured to snap onto the nozzle.

7. The cap of claim **5**, wherein the nozzle, the inner sealing part, and the cap are concentric.

8. The cap of claim **5**, wherein the lid further includes a reinforcing rib extending in a radial direction of the cap.

9. The cap of claim **8**, wherein the lid includes second and third reinforcing ribs extending in a radial direction of the cap.

10. The cap of claim **1**, wherein the cap is integrally formed as a single piece.

11. A bottle comprising:

a bottle body; and

a removable cap, including:

a base having an upper base rim,

a lid having a first operative region defined by a first recessed face and a diametrically-opposed second operative region defined by a second recessed face, the lid including a beam extending from a top of the lid, and an annular bottom rim configured to contact the upper base rim at an upper surface of the upper base rim, the annular bottom rim extending continuously in an area of the first operative region directly below the first recessed face, the upper surface of the upper base rim configured to contact the annular bottom rim directly below the area, and

a hinge connecting the base and the lid and located in the second operative region,

wherein the cap is openable by pressing the first operative region in an upward direction and closable by pressing the second operative region in a radially inward direction.

12. A cap comprising:

a base including a nozzle having a nozzle rim and an upper base rim;

a hinge; and

a lid including:

a beam extending from a top of the lid,

an inner sealing part for engaging the nozzle rim,

a first operative region defined by a first recessed face and a ledge,

a second operative region defined by a second recessed face and a portion of the hinge, and

an annular bottom rim configured to contact the upper base rim at an upper surface of the upper base rim, the annular bottom rim maintaining a constant distance from the top of the lid in an area directly below the first operative region,

wherein the lid is openable by pressing the first operative region in a first direction and closable by pressing the second operative region in a second direction.

13. The cap of claim **12**, wherein at least a portion of the upper surface of the upper base rim maintains a constant distance from the top of the lid in an area directly below the first operative region.

14. The cap of claim **1**, wherein the annular bottom rim defines a bottommost surface configured to contact the upper base rim, and the bottommost surface has a flat profile.

15. The cap of claim **1**, wherein the first recessed surface provides a sealed wall through which ink cannot pass.

16. The cap of claim **1**, wherein the first recessed surface is a sealed wall defined between the first longitudinal wall, the second longitudinal wall, and the ledge through which ink cannot pass.

* * * * *